CBI
Ministry of Foreign Affairs

CBI Product Factsheet:

Vehicle Batteries in Germany, France, Spain, Italy and the United Kingdom

Introduction

The Original Equipment Manufacturer (OEM) market for conventional lead-acid batteries is expected to grow at a Compound Annual Growth Rate (CAGR) of 4% in 2016. Germany and France are the biggest importers of batteries in the EU5, with import values above €500 million. All of the EU5 countries (the biggest EU economies: Germany, France, the UK, Italy and Spain) have a relatively high share of imports from developing countries indicating that there is an open and opportune market for the developing country exporters.

Product definition

Automotive batteries are grouped under the Automotive Parts and Components sub-category "Parts, components and accessories for all kinds of common automotive vehicles" (HS codes: 85071031, 85071039, 85071041, 85071049, 85071081, 85071089, 85071092, 85071098, 85072031, 85072039, 85072041, 85072049, 85073020, 85073081, 85073091, 85073093, 85073099). The product group comprises batteries mainly used as a power source for the starter of a combustion engine, as well as all the electrical components of a vehicle. The main battery types discussed in this report include lead-acid batteries, nickel-cadmium, lithium-ion batteries and sodium-nickel chloride batteries. This Product Factsheet analyses the market for automotive batteries in EU5 countries (the biggest EU economies: Germany, France, the UK, Italy and Spain).

Product specifications

Quality

In the EU, battery quality is considered to be very important. Battery quality is determined based on durability and other factors (depending on the battery's function). Lithium-ion batteries used in electric vehicles for example require a high energy density to increase the vehicles range and a fast recharge capability. More traditional lead-based batteries especially need to function at cold temperatures and be compatible with the cars electrical system.

In addition, increasing demands are made of suppliers in terms of environmental and social responsibility.

Most vehicle batteries are manufactured and sold under brand names, as customers tend to associate performance and quality with branding. OEMs will utilise specific branded batteries in the assembly of vehicles. In the aftermarket sector there are various channels with different requirements, which provide opportunities for both branded and non-branded batteries.

Tips:

- The EU's technical requirements differ per product. To explore the technical requirements of your product, we would like to refer you to the EU Export Helpdesk and the International Trade Centre's Standards Map.
- For more information on requirements for exporting batteries to the EU read the CBI Buyer Requirements: Automotive Parts and Components

Materials:

Batteries consist of a number of different materials. These depend on the type of battery and its application. The following materials are utilised in standard automotive batteries

- Lead
- Lead dioxide
- Sulphuric acid
- Water
- Polycarbonate
- Polypropylene

Packaging & Labelling

In general, packaging is determined by the buyer: either the OEM or the end user (retailer, or wholesaler in the aftermarket). OEM suppliers, in order to reduce costs and to improve the efficiency of packaging operations, most often use returnable packaging. Returnable packaging is not discarded after use and the empty packaging is recycled by the OEM or by a designated packaging operator. In the aftermarket sector, the packaging is typically disposable, as it is discarded after being used just once.

Tip:

- For more information on requirements for packaging and packaging waste, we refer to the European Commission

Automotive batteries are usually covered in plastic. The use of metal is restricted due to the risk of short circuiting. Batteries are often shipped on pallets in cardboard or fiberboard boxes.

In order to export to the EU, product packaging must comply with EU standards and legislation, for example:

- Wood packaging materials used for transport (including dunnage) (Directive 2000/29/EC): Europe sets requirements for wood packaging materials such as packing cases, boxes, crates, drums, pallets, box pallets and dunnage (wood used to wedge and support non-wood cargo).
- Another packaging-related directive is the general directive about packaging and packaging waste (Directive 94/62/EC). This directive stipulates the marking of the kind of packaging material used, and the maximum levels of heavy metals allowed in the packaging material.

Design:

Vehicle batteries are used in different types of vehicles with varying specifications. Each OEM will have specific requirements for vehicle battery suppliers. Requirements in the aftermarket sector will vary according to vehicle, make, model and customer needs.

Figure 1: Vehicle battery and packaging

Source: Fotolia

Buyer Requirements

Requirements can be divided into:
(1) musts; these are legal and non-legal requirements you must meet in order to enter the market and
(2) common requirements; which are those most of your competitors have already implemented; in other words, the ones you need to comply with in order to keep up with the market.

Musts: The most important requirement for automotive components such as vehicle batteries is that they comply with the technical standards set by EU legislation in order to guarantee vehicle safety and environmental safety.

Type-approval is a certification for various types of motor vehicles and their components, which includes agricultural and forestry tractors. The type-approval or certification is valid in all EU Member States and is required when selling any products in the EU. Many automotive components are not approved until the final assembly, in which case certification of individual components is not necessary, although these components will still have to comply with type-approval requirements.

Tips:

- Check with your buyer, or with the approval authority of the country you want to export to, what the specific standards are for the parts you are manufacturing.
- Read more about type approval at the EU Export Helpdesk.

The End of Life Vehicles (ELV) Directive aims to avoid environmental pollution during the scrapping process through reducing the hazardous materials used in vehicle production. Vehicles must be designed to facilitate proper dismantling and recycling (by coding the components) and the use of heavy metals such as lead, mercury, cadmium and hexavalent chromium is prohibited (with the exception of a few applications).

Tip:

- Check if your buyer uses the International Material Data System (IMDS). This is a collective, computer-based data system developed by automotive OEMs to manage environmentally relevant aspects of the different parts used in vehicles. It has been adopted as the global standard for reporting on material content in the automotive industry.

In addition, more legal requirements are stated in our study on buyer requirements. When exporting chemicals, we advise you to read the REACH regulation. In the EU, buyers are responsible for CE marking, which means that they will have additional requirements in terms of safety, health and environmental protection.

Common buyer requirements:
Common requirements can be those put in place by the public sector (such as standardisation bodies), or they may be industry-led requirements (such as buyer requirements and private standards). Private standards are on the rise in Europe, and include industry-led (niche) initiatives used to create enhanced quality, traceability and unity in design and dimensional specifications.

In general, standards can focus on product quality and production process (including social issues and environmental issues).

Quality Management: In order to apply for type approval, production processes need to meet quality management criteria. ISO TS/16949 focuses on the design, development and production of automotive-related products and ISO 9001 is a more general quality standard. Both are accepted as standard requirements and EU buyers and manufacturers often insist on them.

Tips:

- Implement ISO 9001 and ISO TS/16949, as it is a standard requirement of EU buyers.
- Check our study on buyer requirements within the automotive industry for more information.

The EU has set binding emission targets for new cars and vans. This means that every new car or van sold is permitted a certain level of CO_2 and NO_x emission. Note that pollution levels are currently only measured in the lab. Recent scandals with respect to real-world pollution levels versus the levels in the lab tests have led to the introduction of the Real Driving Emissions (RDE) test by the EU in February 2016. This means that cars sold in the EU must pass an RDE test, starting from September 2017. Since the emission targets will become stricter on a gradual scale, new cars need to become less thrifty every year. This will lead to increasing demands by OEMs towards their parts and material suppliers.

Tip:

- Be prepared that the requirements stated by your buyer might become even stricter in the future, in order to comply with binding emission targets.

Corporate social responsibility (CSR) and the extent to which buyers expect a certain level of social and environmental performance is becoming increasingly important. Bigger EU companies have developed their own CSR policies and require their suppliers (and their sub-suppliers) to conform to these. Signing a supplier code of conduct is often a prerequisite. These codes of conduct generally cover compliance with local laws, protection regarding workers' health and safety, respecting basic labour rights and also business ethics. The implementation of an environmental management system is often a requirement for core suppliers.

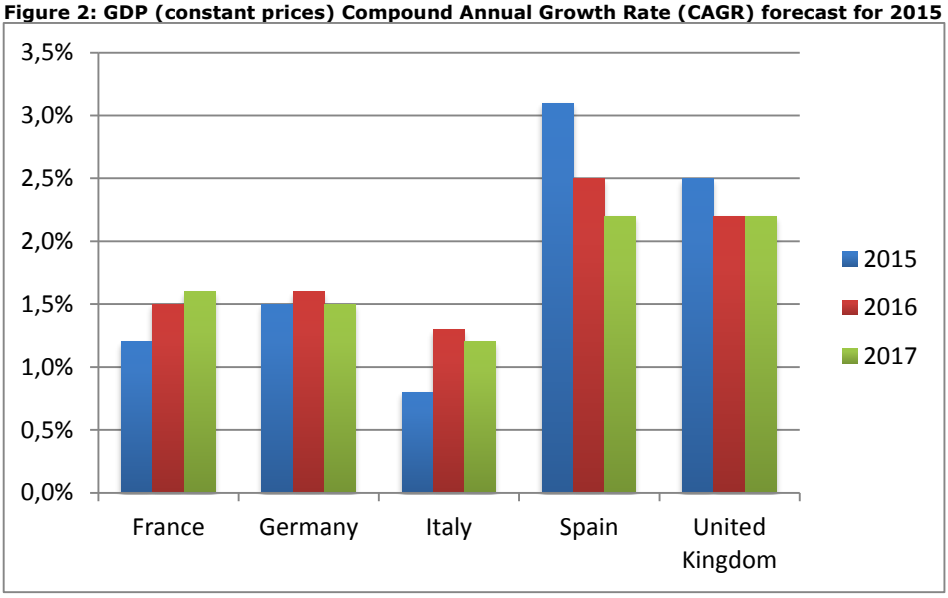
Tips:

- The leading car producers publish their CSR policies and supplier code of conduct on their websites. An Internet search for these may give valuable insight into assessing your company's performance by comparison.
- Implement an environmental management system, such as ISO 14001, as it is a common requirement.

Macroeconomic statistics

The national Gross Domestic Products (GDPs) of the EU5 countries saw an average growth of 1.1% in 2014. The International Monetary Fund (IMF) predicts an average GDP growth of 1.8% in the EU5 countries between 2015 and 2017. The GDP growth factor is an important economic indicator and therefore a predictor for the production of as well as the demand for vehicle batteries.

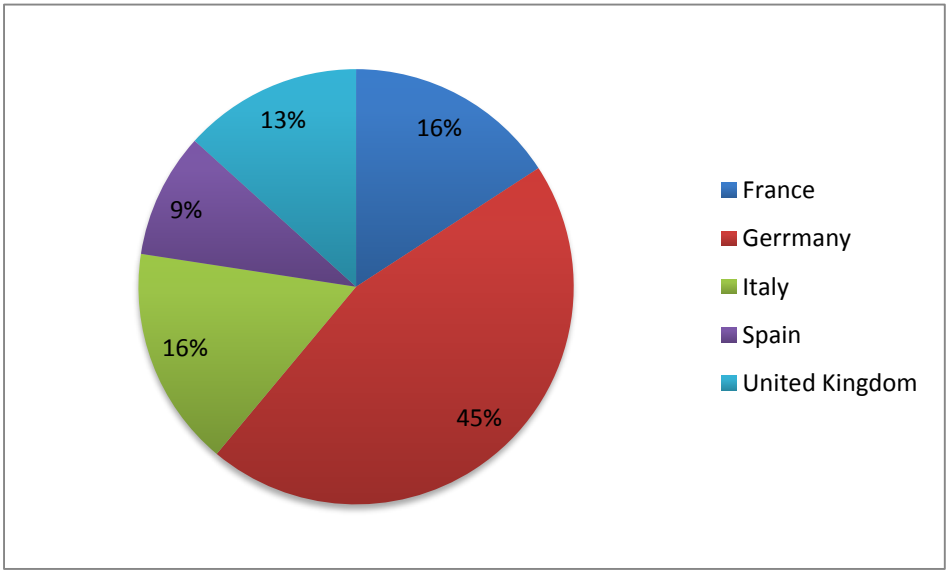
Figure 2: GDP (constant prices) Compound Annual Growth Rate (CAGR) forecast for 2015 - 2017 in EU5



Data source: IMF 2015, World Economic Outlook Database

The total national GDP value for the EU5 countries together was estimated at about €9.5 trillion in 2014. Germany is the largest market in the EU5 with a GDP of €2.91 trillion accounting for a share of almost one third of the total GDP and with by far the strongest manufacturing base of all EU5 countries (€670 billion in 2014). Germany is followed by France and the UK, each of which represent roughly one fifth of the GDP value and 15% of the total manufacturing value for the five countries. France and the UK are followed by Italy, with a GDP value of €1.6 trillion and a manufacturing value of €242 billion. With a 2014 GDP of almost €1 trillion and a manufacturing value of €138 billion, Spain is the smallest of the five economies.

Figure 3: Relative national manufacturing value 2014 in EU5 countries



Data source: IMF 2015, World Economic Outlook Database

Trade Statistics

Imports and exports

The Eurostat data do not provide complete trade values for automotive batteries after 2010. As of 2010, the EU5 imported roughly €1.7 billion worth of automotive batteries. Germany, France and the United Kingdom together represented 74% of the total imports of batteries into the EU5 (€1.3 billion). Imported batteries are shipped mainly from Eastern and Western Europe as well as from China, Japan and Korea.

The value of automotive battery imports from the developing countries to the EU5 in 2010 was estimated at €248 million (14.4% of total automotive battery imports). Germany imports the most from the developing countries in absolute terms (€85 million), followed by the United Kingdom (€71 million). The United Kingdom, Spain and Germany represent the highest shares of developing country battery imports.

The EU5 is a net exporter of batteries, having exported approximately €1.9 billion worth of those in 2010. Germany is the largest exporter with €684 million (or nearly 37% of total EU5 battery exports), followed by Spain with €456 million and Italy with €361 million. Together these countries account for nearly 83% of EU5 battery exports. The batteries are mainly exported within the EU countries as well as to other developed countries. Roughly €109 million worth of batteries are exported to the developing countries (approximately 5.9% of all exports).

The OEM battery market in EU5 was estimated at 12 billion units in 2013 and expected to grow to 13 billion units in 2016 at a CAGR of 4% each year.

For more information on automotive trade statistics, read our study on the demand for automotive products in the European market.

Market trends and opportunities

- *There are opportunities in markets other than the passenger car industry.* Although the European market is expected to stagnate in the short/medium term due to the already high density of car ownership, there are still opportunities to be explored by developing country exporters within the EU5. In particular, there are opportunities outside the conventional passenger car industry. The companies active in truck, bus, tractor and earth moving equipment manufacturing operate on a smaller scale and have fewer requirements for components than the passenger car industry. Here the Tier 1 system suppliers for the OEMs should be primarily targeted. Some potential also exists in the aftermarket sector of the same equipment.
- *The lead-acid battery market offers opportunity.* The steady increase in automotive demand in regions other than Europe, such as developing markets in Asia-Pacific and Latin America in particular, and the subsequent rise in automotive production, will continue to lend traction to the global automotive lead-acid battery market in the OEM sector.
- *EU5 countries are willing to import vehicle batteries from developing countries.* All EU5 countries with the exception of France have a relatively high share of battery imports originating in the developing countries, indicating a willingness to source components from this part of the world.
- *The demand for 48 volt batteries is rising.* For cars with an internal combustion engine, the use of lead–acid batteries is still common. Although car manufacturers work with different batteries, the 48 volt batteries will probably dominate the market in the future especially within combustion driven cars.
- *The technology on vehicle batteries is evolving rapidly.* For electric cars, a lot of R&D effort is spent on the reduction of production costs and on extending the range and weight of batteries. Nickel-cadmium batteries for example, are no longer used in cars. New technologies such as lithium-ion and nickel-metal hybrid are being deployed in hybrid and full electric vehicles. With the increasing adoption of electric and hybrid vehicles, the demand for these technologies will also increase. Due to rapid technological changes, you should keep your products updated and be highly aware of technological trends.

Tip:

- For more information on automotive market trends and opportunities, read the CBI Trend Mapping for Automotive Parts and Components.

Price

Apart from the distribution of new parts, the aftermarket for automotive parts also encompasses a lively distribution of used or overhauled parts and components. Pricing depends on the supply chain positioning. The aftermarket, in particular, is very discount-driven and has varied mark-ups at each distribution step, and for different parts and components. Due to large variation in types and models of parts, it is difficult to provide a general overview of vehicle battery prices, but it is possible to provide some insight into margins imposed by different players in the supply chain. Based on the margin ranges, developing country suppliers selling to the Tier 3 supplier in the OEM supply chain could price their products at between 64% and 81% of the OEM delivery price. The differences in price of branded spare parts will not be great among the various countries. Those players who are present in several European countries have largely harmonised their prices; any differences in pricing may occur because of different logistics and local costs. In the Original Equipment segment, the price is set by 4+ year contracts, which usually include a 3-5% price reduction each year after the first year. In the aftermarket, the prices are negotiated every year.

OEM supply chain	Margin
T1 supplier delivering to OEM	7-9%
Tier 2 supplier delivering to Tier 1	7-17%
Tier 3 supplier delivering to Tier 2	11-27%
Aftermarket Original Equipment Supplier (OES)	**Margin**
Tier 1 delivering to OEM for OES sales through approved service chain	11-32%
Tier 1 delivering to OEM for OES sales through independent outlets	11-27%
OEM delivering OES parts through its approved service chain	26-67%
OEM delivering OES parts through independent outlets	31-42%

Tip:

- In order to better ascertain prices of specific products and models, you should talk directly to wholesalers and local experts. The only way to gain information about products or materials within specific markets is with inside

Main sources

- OECD – good source for macroeconomic and industry-specific information
- CLEPA - European association of automotive suppliers
- ACEA - European automobile manufacturers association
- EY's Automotive information - Automotive information – good source on automotive information
- Inovev - Worldwide automotive knowledge platform that offers free-of-charge and fee- based content
- Trade fairs are a good place to network, to meet buyers and to promote your company. The most prominent agricultural machinery trade fairs in Western Europe are: Hannover Messe - World's leading trade fair for industrial technology taking place in Germany; Internationale Automobil-Ausstellung (every year) – German automotive trade fair; Barcelona Motor Show (once every two years) – Spanish automotive trade fair; British International Motor Show (organised by SMMT once every two years); Paris Motor Show (once every two years) – French automotive trade fair and Bologna Motor Show (every year) – Italian automotive trade fair.

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